

REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars:

Examiner interview

Applicant appreciates the courtesy extended to Applicant's representative during the personal interview conducted on March 22, 2007.

Initially discussed was the rejection under 35 U.S.C. § 101 as directed to non-statutory subject matter. With respect to claims 19-22, Applicant's representative pointed out that these are method claims directed to manipulating an operand memory stack *in a calculating machine*.

It was noted that the operand memory stack is not an abstract data structure, but is physically embodied in the calculating machine. Therefore, the recited method is directed to a useful, concrete, and tangible result of manipulating the contents of the operand stack in the calculating machine. It was agreed that the rejection of claims 19-22 would be withdrawn.

In a similar vein, Applicant's representative argued that in claims 12-16 and 18, the reference to a *memory* stack indicates a physical memory, and accordingly a physical memory structure according to the claims. However, the Examiner maintained that the recitation of "an operand memory stack" is directed solely to an abstract data structure.

It was agreed that rewriting claim 12 to recite "a calculating machine containing an operating memory stack and a processor," instead of "an operand memory stack for use in a calculating machine [...]" would overcome the non-statutory subject matter rejection by sufficiently clarifying that the claim is directed to a physical embodiment in a calculating machine as set forth in the claims, and not merely an abstract data structure.

Also, the rejection of claims 12-16 and 18-22 in view of the IBM publication was discussed. Applicant's representative pointed out that, in the recent Office action, the Examiner has identified several claimed elements that IBM does not teach.

For example, the claimed invention recites an operand memory stack. In the Office action, the Examiner notes that "IBM does not teach the data structure being a stack, but rather a circular buffer." Also, the claimed invention recites the length of a particular operand type is stored in a table in dependence on the corresponding coded type information. In the Office action, the Examiner notes that "IBM does not teach the length of a particular operand type is stored in a table in dependence on the corresponding coded type information. Rather, the length is explicitly put into the field."

Applicant's representative pointed out that, in each instance, while the Examiner asserts that these aspects of the present invention would be obvious, the Examiner seems to have only provided a hindsight analysis of how, in view of the present disclosure, IBM could have been modified.

It was agreed that the IBM reference by itself does not provide a sufficient basis for the present rejection of claims 12-16 and 18-22.

Rejection of claims 12-16 and 18-22 under 35 U.S.C. § 101

Claims 12-16 and 18-22 presently stand rejected as being directed to non-statutory subject matter. This rejection is respectfully traversed for at least the following reasons.

With respect to claims 19-22, these are method claims directed to manipulating an operand memory stack *in a calculating machine*.

Thus, the operand memory stack is not an abstract data structure, but is physically embodied in the calculating machine. Therefore, the recited method is directed to a useful, concrete, and tangible result of manipulating the contents of the operand memory stack in the calculating machine. Accordingly, claims 19-22 are directed to statutory subject matter as a method for manipulating the memory in a calculating machine.

With respect to claims 12-16 and 18, claim 12 has been rewritten to recite “a calculating machine containing an operating memory stack and a processor,” instead of “an operand memory stack for use in a calculating machine [...]” It is respectfully submitted that, as amended, claim 12 is directed to a physical embodiment in a calculating machine as set forth in the claims, and not merely an abstract data structure.

Claims 13-16 and 18 which depend from claim 12 are amended for consistency with claim 12, to recite “the calculating machine according to claim 12 [...]”

In view of these amendments, it is respectfully submitted that claims 12-16 and 18 are directed to statutory subject matter, and withdrawal of the rejection is requested.

Rejection of claims 12-16 and 18-22 under 35 U.S.C. § 103(a)

Claims 12-16 and 18-22 presently stand rejected as being unpatentable over “Storing Variable Length Data in a Circular Buffer” (hereafter IBM). This rejection is respectfully traversed for at least the following reasons.

While claims 12-16 and 18-22 are rejected solely in view of IBM, the Examiner has acknowledged, in the recent Office action, that IBM *does not teach* several elements recited in the claims.

For example, claims 12 and 19 recite an operand memory stack. In the Office action, the Examiner notes that “IBM does not teach the data structure being a stack, but rather a circular buffer.” Claims 12 and 19 also recite that the length of a particular operand type is stored in a table in dependence on the corresponding coded type information. In the Office action, the Examiner notes that “IBM does not teach the length of a particular operand type is stored in a table in dependence on the corresponding coded type information. Rather, the length is explicitly put into the field.”

Further, claims 13 and 20 recite that the type memory is formed separate from the operand memory stack. The Examiner notes that “IBM does not teach the type field being a separate entity, but rather integrated in with the data.”

In each instance, the Examiner has not identified any reference that teaches or suggests the elements that are not taught by IBM, but merely asserts that these elements of the present invention "would have been obvious." The rejection provides no evidence or support for these conclusory statements.

There is no motivation or suggestion for the modifications proposed by the Examiner. Moreover, the modifications to IBM proposed by the examiner would change the principle of operation of the prior art invention being modified. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Length information, according to IBM, is stored together with a data packet in the buffer. This is different from the present invention (as the Examiner has acknowledged) in that, according to the present invention, the length of a particular operand type is stored in a table in dependence on the corresponding coded type information.

That is, length information for the operand is derived from the stored type code for the operand in question by means of a table.

The method of storing operand length information of the present invention is simpler than that described by IBM, and allows greater optimization in the use of memory space. Moreover, the present invention makes possible checking operands while a program is running (as they are read out of the operand memory stack) to determine whether they are of the expected type. Such a check is not possible according to IBM since only packet data and length information is stored.

Notably, the circular buffer of IBM only contains packet data and length information. There is no teaching or suggestion of a type memory, or of any type information contained in the buffer.

The Examiner asserts that "if it was desirable for the data to be longer, it would have been obvious to one of ordinary skill in the pertinent art to designate the size with a

'type' which is specified the fixed length field. The calculating machine would *access a table* to compare the contents of the fixed length field with different types, which specify a length" (emphasis added).

However, IBM does not teach or suggest such a table. Such a modification changes a fundamental operating principal of the method disclose by IBM, and requires elements (type information, and a type memory) not disclose or suggested by IBM.

Moreover, in a section of IBM following the heading "KEY FEATURES," one such key feature identified is that "Length Follows Data – The data length information is written after the data so that it is available from the single location maintained in the write pointer. This format is *key to the 'read backward' capability required* to support the single write pointer" (emphasis added).

The presently claimed invention provides, however, that "operands of different lengths that are *contiguously packed*," and not interspersed with length information.

The "length follows data" arrangement of IBM is explicitly stated by IBM in that "when a data packet is to be written to the buffer, the data itself is copied into the buffer. A representation of the length of the packet is then written as a fixed-length field in the buffer." It is clear that the representation of the length of the packet is different, and separate, from the data packet itself. Therefore, it is clear that IBM does not teach or suggest contiguously packed data.

Referring to the "KEY FEATURE" noted above, a person skilled in the art would not be motivated to modify IBM by eliminating the length data from after the data (between data entries) since IBM teaches that a *required capability* would be eliminated.

Therefore, one skilled in the art, in view of IBM itself (and not in view of hindsight reasoning) would not be motivated to provide *contiguously packed* data elements on a stack with type information stored in a table, the length information being derivable from the operand type.

For at least the foregoing reasons, it can be seen that the cited IBM publication does not provide any basis for a prima facie case of obviousness of the claimed invention,

since IBM does not disclose or suggest each and every element set forth in the claims, and there is no motivation or suggestion for the modifications proposed by the Examiner. Moreover, given the teaching by IBM that the "length follows data" format is key to a required functionality, there can be no reasonable expectation of success in eliminating this "key feature."

Therefore, it is respectfully submitted that claims 12-16 and 18-22 are allowable over the cited reference, and withdrawal of the rejection is requested.

Additionally, Applicant notes that the IBM publication has been considered by an International Preliminary Examination Authority, as indicated by the International Preliminary Examination Report (IPER) of record in the present application. An English language translation of the IPER is included herewith as Appendix A for the Examiner's reference.

In the IPER, the examining authority has identified differences consistent with those set forth herein.

Conclusion

In view of the amendments to the claims, and in further view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is requested that claims 12-16 and 18-22 be allowed and the application be passed to issue.


Application No.: 10/030,106
Examiner: R. Fiegle
Art Unit: 2183

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicant's attorney, the Examiner is invited to contact the undersigned at the numbers shown.

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Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

8

Applicant's or agent's file reference K 51 524/7ch	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/06833	International filing date (day/month/year) 17 July 2000 (17.07.00)	Priority date (day/month/year) 19 July 1999 (19.07.99)
International Patent Classification (IPC) or national classification and IPC G06F 7/00		
Applicant GIESECKE & DEVRIENT GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.



This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 05 February 2001 (05.02.01)	Date of completion of this report 19 July 2001 (19.07.2001)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP00/06833

I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

- ☐ the international application as originally filed.
- ☒ the description, pages 1,3-8, as originally filed,
pages _____, filed with the demand,
pages 2a, filed with the letter of 02 July 2001 (02.07.2001),
pages _____, filed with the letter of _____.
- ☒ the claims, Nos. _____, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. 1-11, filed with the letter of 02 July 2001 (02.07.2001),
Nos. _____, filed with the letter of _____.
- ☒ the drawings, sheets/fig 1/2,2/2, as originally filed,
sheets/fig _____, filed with the demand,
sheets/fig _____, filed with the letter of _____,
sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-11	YES
	Claims		NO
Inventive step (IS)	Claims	1-11	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following document:

D1: "STORING VARIABLE LENGTH DATA IN A CIRCULAR BUFFER", IBM TECHNICAL DISCLOSURE BULLETIN, US, IBM CORP., NEW YORK, Vol. 36, No. 3, 1 March 1993 (1993-03-01), pages 491-493, XP000354850, ISSN: 0018-8689

1. The amended Claim 1 corresponds essentially to the original Claim 1 with the inclusion of the feature of the original Claim 4 whereby the length information for each operand type is stored in a table in accordance with an assigned type code.
2. The scope of protection claimed by Claims 1 and 8 differs from the prior art according to document D1 in that the length information for the operand to be stored is not stored separately; rather, it is derived from the stored type code for the operand in question by means of a table.
3. The method of storing the operand length information is simpler than that used in D1 and allows greater optimisation in the use of the required memory space. Moreover, only the present invention makes it possible to check the operands while the program is running (i.e. as they are read out of the operand stack memory) to determine whether they are of the expected type. Such a check is not possible with the prior art according to D1, since the aim in D1 is merely to store information about the variable length.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 00/06833

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The description is not consistent with the claims (PCT Rule
5.1(a)(iii)).